CLAIMS

1.   A process for the preparation of a synthesis gas con-
taining hydrogen and carbon monoxide by a combination of
5   catalytic partial oxidation and further an autothermal re-
forming process, comprising

(a)   providing separate streams of predetermined propor-
tions of a hydrocarbon feedstock, an oxygen source and of
10   process steam,
(b)   injecting said separate streams into a catalytic par-
tial oxidation reaction zone to react, and to form a prere-
formed product stream,
(c)   introducing the prereformed product and a predeter-
15   mined proportion of a second oxygen source into a further
partial oxidation process step forming a further partially
oxidised process stream by flame reactions,
(d)   reacting the further partially oxidised process stream
in the reaction zone constituting a steam reforming process
20   step to form a synthesis gas product stream, and
(e)   withdrawing the synthesis gas product stream from the
further partial oxidation process step and the steam re-
forming process step, the two steps constituting the auto-
thermal reforming process.
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2.   A process according to claim 1, wherein further
stream(s) of hydrocarbon and/or steam is injected at prede-
termined proportion to the second step of partial oxida-
tion.

3.   A process according to claim 2, wherein the amount of carbon in the second stream of hydrocarbon is not higher than 30% of the total of carbon fed to the further partial oxidation process step in step c.

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4.   A process according to claim 1, wherein the operation pressure is between 5 and 30 bar, the O_2/C inlet the process step of catalytic partial oxidation is between 0.5 and 0.9 and the steam to carbon ratio inlet the process step of catalytic partial oxidation is between 0 and 3.

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5.   A process according to claim 1, wherein the operation pressure is between 10 and 30 bar, the O_2/C inlet the process step of catalytic partial oxidation is between 0.55 and 0.7 and the steam to carbon ratio inlet the process step of catalytic partial oxidation is between 0.2 and 1.5.

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